Docket No.: 4882
(PATENT)

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Patent Application of: Galligan et al.	:
Application No.: 10/757,684	: Group Art Unit: 1755 : Examiner: Patricia L. Hailey
Filed: January 14, 2004	:
For: COATED METAL SUBSTRATE	:

Mail Stop Appeal Brief-Patents
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPELLANT'S BRIEF

TABLE OF CONTENTS

Page

Real Party in Interest

The real party in interest in this proceeding is BASF Catalysts LLC, the successor to the Assignee of record, Engelhard Corporation.

Related Appeals and Interferences

Neither Appellant nor its agents are aware of any prior or pending appeals, judicial proceedings or interferences which may be related to, directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

Status of Claims

Claims 1-7, 9, and 10 are finally rejected and are appealed. Claim 8 is objected to as being dependent upon a rejected base claim. Claims 11-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a non-elected method. A copy of the claims on appeal are in the Claim Appendix of this Brief.

Status of Amendments

Appellant has not submitted any amendments after the final rejection.

Summary of Claimed Subject Matter

Claim 1 is directed to a coated metal substrate for use in the catalytic reduction of engine exhaust emissions comprising a metal substrate having an alumina-silicate coating adhered thereon, said alumina-silicate coating having alumina particles applied to the coating, and a top layer adhered to the alumina-silicate coating. (Page 3, lines 11-28.)[1] Claim 2 depends from claim 1 and further recites that the top layer comprises an engine exhaust treatment catalyst. (Page 3, lines 19-20.) Claim 3 depends from claim 2 and further recites that the catalyst comprises a three-way conversion catalyst. (Abstract.)

[1] Page and paragraph designations refer to those found in the originally filed specification.

Claim 4 depends from claim 1 and further recites that the metal substrate comprises a metal selected from the group consisting of a stainless steel, a carbon steel, titanium, a FeCr alloy and a metal alloy containing nickel, chromium and molybdenum. (Page 3, lines 1-2.) Claim 5 depends from claim 4 and further recites that the metal substrate comprises a stainless steel. (Page 3, lines 1-2.) Claim 6 depends from claim 1 and further recites that the alumina particles have a particle size in the range of about 5 to about 15 microns. (Page 5, lines 1-3.) Claim 7 depends from claim 6 and further recites that wherein the alumina particles have a particle size in the range of 6 to 9 microns. (Page 5, lines 1-2.)

Claim 8 depends from claim 1 and further recites that the alumina particles are present in an amount of about 0.1 to about 0.5 g/in^2 of the alumina-silicate coating. (Page 5, lines 3-5.)[2] Claim 9 depends from claim 1 and further recites that the metal substrate is employed in the form of an expansion cone or exhaust gas silencer. (Page 3, lines 6-7.) Claim 10 depends from claim 9 and further recites that the expansion cone has a length of about 100 to about 300 mm, a diameter ranging from about 30 to about 100 mm, a thickness of about 0.5 to about 3 mm and an inside surface area of about 0.03 to about 0.06 m^2. (Page 3, lines 8-10.)

Ground of Rejection to be Reviewed on Appeal

Whether claims 1-7, 9 and 10 are unpatentable under 35 U.S.C. § 102(a) over WO 03/050397.

---

[2] Claim 8 appears to contain a typographical error, and the proper recited range should be 0.01 to about 0.5 g/in^2. Upon indication of allowance of the case, an amendment will be filed to correct this error.

Argument

Claims 1-7, 9 and 10 in this application stand finally rejected under 35 U.S.C. § 102(a) as allegedly unpatentable over WO 03/050397.

Rejection of Claim 1

Claim 1 recites a coated metal substrate comprising a metal substrate having an alumina-silicate coating adhered thereon, the alumina-silicate coating having alumina particles applied to the coating and a top layer adhered to the alumina-silicate coating. Appellant's specification demonstrates that coating compositions do not adhere well to the alumina-silicate coating, particularly under conditions to which the coated metal substrate will be exposed during operation of a small engine, partly due to the fact that the surface of the alumina-silicate coating is quite smooth. (Appellant's specification at page 3, lines 14-16.) Example 1 in Appellant's demonstrates that when the alumina-silicate coating merely contains alumina particles, the top coating over the alumina-silicate coating does not adhere. (Page 6, lines 1-19.) On the other hand, Example 2 demonstrates that when the aluminum oxide particles are applied to the alumina-silicate coating, as opposed to being mixed in with the coating prior to application, the top coating adhered to the alumina-silicate coating. (Page 7, lines 1-5.)

WO 03/050397 fails to teach or suggest the invention defined by claim 1. With reference to Fig. 2, WO 03/050397 teaches an outer structural layer, an insulation layer 24 and an inner layer 22 over the insulation layer 24. The inner layer 22 is made by mixing fibers and non-fibrous filler material for the inner layer 22, and WO 03/050397 further teaches that the "ceramic filler fills the void or interstitial space between the fibers, and preferably coats the fibers." See paragraph 29, lines 6-7. In addition, the

ceramic filler material in the inner and insulation layers 22 and 24 preferably coats or binds the ceramic fibers present in that layer. See paragraph 0040, lines 4-6. Moreover, WO 03/050397 states that the inner layer has a localized porosity at the inner wall surface 21 being near zero or substantially zero. See paragraph 30, at lines 1-4 of page 8. A layer having a porosity of zero or substantially zero suggests an inner layer and inner wall surface 21 that are smooth, contrary to the coated metal substrate defined by Appellant's claim 1, which has alumina particles applied on the alumina-silicate coating, which provides a roughened surface for a top coating to adhere.

Thus, WO 03/050397 discloses mixing the ceramic filler material in both the insulation layer 24 and the inner layer 22 so that the ceramic filler material coats or binds the ceramic fibers present in the respective layers, teaching away from the presently claimed invention. Note that claim 1 of the instant application includes the limitation that the alumina particles are applied to the alumina-silicate coating, and a top layer is adhered to the alumina-silicate coating.

The Final Office Action states at the sentence bridging pages 3 and 4 that the limitation "while the coating is still wet on the substrate" is a process limitation that is not given patentable weight. In an amendment submitted prior to the Final Office Action, Appellant amended claim 1 to remove the limitation "while the coating is still wet on the substrate". Accordingly, the basis for this rejection is without merit. However, to the extent the Examiner maintains that the limitation "alumina particles applied to the coating" is a process limitation, Appellant respectfully disagrees and submits that the limitation "applied to the coating" must be given patentable weight.

MPEP Section 2113 instructs that "[t]he structure implied by the process steps should be considered when assessing the patentability of product-by-process claims over the prior art, especially where the product can only be defined by the process steps by which the product is made, or where the manufacturing process steps would be expected to impart distinctive structural characteristics to the final product. See, e.g., *In re Garnero*, 412 F.2d 276, 279, 162 USPQ 221, 223 (CCPA 1979) (holding "interbonded by interfusion" to limit structure of the claimed composite and noting that terms such as "welded," "intermixed," "ground in place," "press fitted," and "etched" are capable of construction as structural limitations.)" (emphasis added) In the instant case, Appellant's specification, particularly Example 1, amply demonstrates that when the alumina particles are mixed in with the alumina-silicate coating prior to application, the subsequently applied top layer does not bond to the alumina-silicate layer. However, Appellant's Example 2 demonstrates that when the alumina particles are applied to the alumina-silicate coating, the top layer adheres to the alumina-silicate coating, providing a catalyst that adheres over a wide range of conditions to which the coated metal substrate will be exposed during operation of a small engine. WO 03/050397 fails to teach or suggest such a product having such distinctive structural characteristics, namely a metal substrate having an alumina-silicate coating adhered thereon, the alumina-silicate coating having alumina particles applied to the coating and a top layer adhered to the alumina-silicate coating. For at least this reason, the rejection of claim 1 should be reversed.

Rejection of Claims 2 and 3

Claim 2 depends from claim 1 and recites that the substrate further comprises a top layer comprising an engine exhaust treatment catalyst. Claim 3 depends from claim 2

and recites that the catalyst comprises a three-way catalyst. In the Final Office Action, the Examiner takes the position that the inner layer 22 in WO 03/050397 reads on Appellant's alumina-silicate coating. (Final Office Action, page 4.) The rejection of claims 2 and 3 merely states that a catalyst can be added to the inner layer, citing paragraph 47 of WO 03/050397. There is no teaching or suggestion in WO 03/050397 of a "top layer" comprising an engine exhaust treatment catalyst or a three-way catalyst. As taught in Appellant's specification, the top layer may be a washcoat containing an engine exhaust treatment catalyst applied (e.g., by spraying, dipping, rolling, etc.) to the coated metal substrate having the alumina particles applied to the alumina-silicate coating. (Page 5, lines 7-8). Since WO 03/050397 fails to teach a top layer containing an engine exhaust treatment catalyst, the rejection of claims 2-3 should be reversed.

Rejection of Claims 4-5

Claim 4 recites that the metal substrate comprises a metal selected from stainless steel, a carbon steel, titanium, a Fe-Cr alloy and Hastelloy. Claim 5 recites that the substrate comprises stainless steel. The Final Office Action cites paragraph 47 of WO 03/050397 as teaching a metal or metal alloy such as steel. WO 03/050397 fails to teach or suggest any of the metals recited in claim 4 or stainless steel particularly. The teaching in WO 03/050397 of metal, metal alloy or steel encompasses an extremely large genus of metals. There is no teaching or suggestion of the particular metals recited in claim 4 or stainless steel as specifically recited in claim 5. Accordingly, the withdrawal of claims 4 and 5 should be reversed.

Rejection of Claims 6-7

Claim 6 recites that the alumina particles have a particle size in the range of about 5 to 15 microns. Claim 7 recites that the alumina particles have a particle size in the range of 6 to 9 microns. The Final Office Action relies upon paragraph 30 of WO 03/050397 as teaching fibers having a length of about 10-1000 microns. As stated in MPEP Section 2131.03:

> In order to anticipate the claims, the claimed subject matter must be disclosed in the reference with "sufficient specificity to constitute an anticipation under the statute." What constitutes a "sufficient specificity" is fact dependent. If the claims are directed to a narrow range, >and< the reference teaches a broad range, ** depending on the other facts of the case, it may be reasonable to conclude that the narrow range is not disclosed with "sufficient specificity" to constitute an anticipation of the claims. **>See, e.g., *Atofina v. Great Lakes Chem. Corp*, 441 F.3d 991, 999, 78 USPQ2d 1417, 1423 (Fed. Cir. 2006) wherein the court held that a reference temperature range of 100-500 degrees C did not describe the claimed range of 330-450 degrees C with sufficient specificity to be anticipatory. Further, while there was a slight overlap between the reference's preferred range (150-350 degrees C) and the claimed range, that overlap was not sufficient for anticipation.

Appellant respectfully submits that the disclosure replied upon in the Final Office Action is not sufficiently specific to anticipate the particle size range recited in claim 6, because there is only slight overlap between the reference and the range recited in claim 6. Moreover, in claim 7, there is no overlap between the range recited in the claim and the range disclosed in WO 03/060397. For at least these reasons, the rejection of claims 6 and 7 should be reversed.

Rejection of Claim 9 and 10

Claim 9

Claim 9 recites that the metal substrate is employed in the form of an expansion cone or exhaust gas silencer. The Final Office Action cites paragraphs 48 through 50 of WO 03/050397 as disclosing a catalyst body 30 (with reference to Figure 4) within the

gas passageway of the manifold 10 as disclosing an exhaust gas silencer. (Final Office Action, page 3.) No explanation is provided as to how the catalyst body or the manifold meets the limitation of an expansion cone or exhaust gas silencer. Accordingly, the Office Action fails to establish how WO 03/050397 teaches every limitation of claim 9, and the rejection should be reversed.

Claim 10

Claim 10 further recites specific dimensional limitations of the expansion cone. None of these dimensions is taught or suggested in WO 03/050397. For this reason, the rejection of claim10 should be reversed.

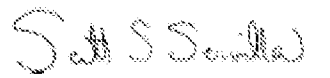
Conclusion

In view of the foregoing, claims 1-10 of the application are patentable over the reference cited by the examiner.

The undersigned was authorized by Richard A. Negin, Reg. No. 28,649, an attorney of record in the subject application, to prepare and file this Amended Appellant's Brief on behalf of the Assignee. Correspondence should continue to be directed to Chief Patent Counsel, BASF Catalysts LLC, 101 Wood Avenue, P.O. Box 770, Iselin, NJ, 08830-0770.

Dated: January 8, 2007

Respectfully submitted,

By: 

Scott Servilla
Registration No. 40,806
Telephone: (732) 815-0404
Facsimile: (732) 815-1330

BASF Catalysts LLC
101 Wood Avenue
P.O. Box 770
Iselin, NJ, 08830-0770

Claims Appendix

1. A coated metal substrate for use in the catalytic reduction of engine exhaust emissions comprising a metal substrate having an alumina-silicate coating adhered thereon, said alumina-silicate coating having alumina particles applied to the coating, and a top layer adhered to the alumina-silicate coating.

2. The substrate of claim 1 said top layer comprising an engine exhaust treatment catalyst.

3. The substrate of claim 2 wherein the catalyst comprises a three-way conversion catalyst.

4. The substrate of claim 1 wherein the metal substrate comprises a metal selected from the group consisting of a stainless steel, a carbon steel, titanium, a FeCr alloy and a metal alloy containing nickel, chromium and molybdenum.

5. The substrate of claim 4 wherein the metal substrate comprises a stainless steel.

6. The substrate of claim 1 wherein the alumina particles have a particle size in the range of about 5 to about 15 microns.

7. The substrate of claim 6 wherein the alumina particles have a particle size in the range of 6 to 9 microns.

8. The substrate of claim 1 wherein the alumina particles are present in an amount of about 0.1 to about 0.5 g/in^2 of the alumina-silicate coating.

9. The substrate of claim 1 wherein the metal substrate is employed in the form of an expansion cone or exhaust gas silencer.

10. The substrate of claim 9 wherein the expansion cone has a length of about 100 to about 300 mm, a diameter ranging from about 30 to about 100 mm, a thickness of about 0.5 to about 3 mm and an inside surface area of about 0.03 to about 0.06 m^2.

Evidence Appendix

None.

Related Proceedings Appendix

None.